

Three-Lane Roadways with Two-Way Left-Turn Lanes

Continuous two-way left-turn lanes (TWLTL) are a common access management treatment. Typically, they are used in the center of a four-lane roadway. However, a less-common design involving three lanes—a TWLTL in the center for left turns and one lane in each direction for through traffic—is being used more and more frequently. At first, the idea of a three-lane road may seem strange. But under the right circumstances they can work very well, operating better and more safely than a four-lane undivided road.

Why is there a need for three-way street designs?

From the 1950s through the 1970s, many arterial and collector roads and streets were constructed with either two lanes or four lanes and no turn lanes or medians. Since all lanes served both through traffic and turning traffic, these roads began to operate less efficiently and safely as the volume of turning traffic grew. In many cases, this may have been caused by unmanaged development and access along the roadway. When such roads experience a considerable amount of turning traffic, congestion delays and crashes increase. Types of crashes most associated with turning vehicles include rear-end and broadside collisions.

Because TWLTLs separate left-turning traffic from through traffic, they can help solve some of these problems. A detailed accident study conducted in Minnesota between 1991 and 1993 indicates that three-lane arterial roadways in urban areas are about one-quarter (27 percent) safer than four-lane undivided urban arterial roadways (see table below). In fact, three-lane roads approach the safety level of much wider four-lane roadways with medians or five-lane roadways and can cost far less to build. They also fit in a smaller right-of-way, which can mean less disruption to adjacent properties.

Roadway Type (All Urban Arterials)	Crash Rate (Crashes per Million Vehicle Miles)
Four-lane undivided	6.75
Three-lane with center turn lane	4.96
Four-lane with median	4.02
Five-lane with center turn lane	4.01

Source: BRW, Inc., study for the Minnesota Department of Transportation, August 1998.

Where can three-lane street designs be used?

Three-lane roadway designs can be effectively used in situations with low to moderate levels of through traffic that have safety concerns about left-turning traffic. The upper average daily traffic (ADT) limit for using a three-lane design is about 17,000 vehicles per day of traffic. Three-lane designs are ideal where right-of-way width is limited by land development or other constraints. Three-lane roads can be originally designed this way or created by widening an existing two-lane route or modifying an existing four-lane undivided route.

Where should three-lane street designs be avoided?

Three-lane roadway designs with TWLTLs should generally not be used in situations where the through traffic volume is substantial. When the ADT on a street exceeds about 17,000 vehicles per day, a three-lane road may start to become ineffective. In such cases, four-lane roadways with raised medians or five-lane roadways with TWLTLs may be more appropriate designs.



A three-lane street with a two-way left-turn lane in West Des Moines, Iowa.



A four-lane undivided street operating as a “defacto” three-lane street. Most of the through traffic is in the outside lane, and the inside lane is used almost exclusively by turning traffic. These streets are candidates for conversion to three-lane streets.